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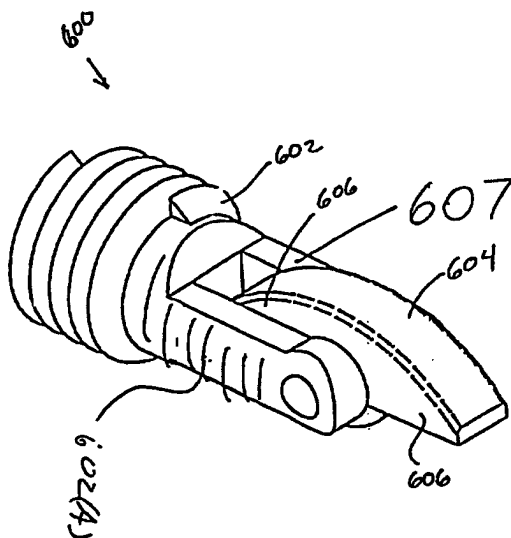
— with international search report

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30 October 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **BONE FASTENERS AND METHOD FOR STABILIZING VERTEBRAL BONE FACETS USING THE BONE FASTENERS**

(57) Abstract: A bone fastener for stabilizing bone fragments includes a single or multiple components coupleable with one another and displaceable to a locked position of the bone fastener.



WO 03/057054 A3

## INTERNATIONAL SEARCH REPORT

National Application No

PCT/U 2/41444

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61B17/68

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 485 531 A (KING GEORGE S ET AL) 18 October 1949 (1949-10-18) column 1, line 1-3; claim 1; figures 1-3 ---	1-5,14, 15,18,19
X	WO 01 95818 A (YEUNG JEFFREY E) 20 December 2001 (2001-12-20)  abstract; figures 15,16 page 13, line 10-24 page 14, line 25-27 ---	1-5,14, 15, 18-21, 24,25, 29,30
X	FR 2 787 010 A (HURE GUY) 16 June 2000 (2000-06-16) abstract; figures 4,6,7 page 5, line 7-14 ---	1,6-13
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

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## INTERNATIONAL SEARCH REPORT

National Application No

PCT/US 2/41444

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 511 051 A (WILLIAM DZUS) 13 June 1950 (1950-06-13)  column 2, line 48-51; figures 1,7,9 ---	1,2,14, 15,18, 19,35
X	US 6 258 091 B1 (SHEARIN ALAN ET AL) 10 July 2001 (2001-07-10)  abstract; figures 2,5,6 ---	1,2, 10-12, 14,15, 18,19,24
X	GB 2 323 533 A (KARNEZIS IOANNIS) 30 September 1998 (1998-09-30) abstract; figures 1,2,5,6 page 2, line 27 -page 3, line 1 ---	1,6,7, 10,13,14
X	EP 1 004 280 A (TWENTY ONE INC) 31 May 2000 (2000-05-31) abstract; figure 14B ---	1,6-8
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 670 (C-1139), 9 December 1993 (1993-12-09) & JP 05 220174 A (YUMIKO SHIMA), 31 August 1993 (1993-08-31) abstract figures 1-3 ---	1,2,14, 18,19, 24,26
X	FR 2 703 239 A (BRIO BIO RHONE IMPLANT MEDICAL) 7 October 1994 (1994-10-07) abstract; figures 2,3 ---	1,18-20, 24-26
X	US 6 302 887 B1 (SPRANZA JOSEPH JOHN ET AL) 16 October 2001 (2001-10-16)  abstract; figure 1 ---	1,2,14, 15,18, 19,35
X	US 2001/011173 A1 (LERCH KARL-DIETER) 2 August 2001 (2001-08-02) abstract; figures 2,4,6 paragraphs [0019]-[0022] ---	1,16-21, 24,25
A	US 5 919 194 A (ANDERSON DAVID L) 6 July 1999 (1999-07-06) abstract; figures 1,2 ---	6,22,23
X	WO 01 80751 A (ANCHOR MEDICAL TECHNOLOGIES IN) 1 November 2001 (2001-11-01) abstract; figures 28,31 -----	1,2,6

# INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/US 02/41444

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 36-39  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-26, 35, 40

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-26, 35,40

bone fastener with two portions, one with a shaft and the other one with a hollow body

1.1. Claims: 1-5, 14-15,18-19, 24  
Rotatable anchor

1.2. Claims: 6-9  
Slotted sleeve and expanding parts.

1.3. Claims: 10-13  
Fastener with an anchoring portion with an inner hole.

1.4. Claims: 16-17  
Press fit assembly.

1.5. Claims: 20-21, 25  
Assembly with spikes.

1.6. Claims: 22-23  
Assembly with a curved cylindrical body.

1.7. Claim : 26  
Assembly with ratchet mechanism.

1.8. Claim : 35  
Screw with a cylindrical body, a shaft and a head.

2. Claims: 27-30,40

Assembly with jaws pivotally coupled at one ends of the jaws.

3. Claims: 31-34,40

Assembly with parts made of memory shape alloy.

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2002/41444

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2485531	A	18-10-1949	NONE	
WO 0195818	A	20-12-2001	AU 7370900 A EP 1299041 A1 WO 0195818 A1	24-12-2001 09-04-2003 20-12-2001
FR 2787010	A	16-06-2000	FR 2787010 A1	16-06-2000
US 2511051	A	13-06-1950	NONE	
US 6258091	B1	10-07-2001	US 5707373 A US 2002004661 A1 DE 29724567 U1 DE 29724708 U1 EP 0929266 A1 JP 2000505323 T WO 9729708 A1	13-01-1998 10-01-2002 16-01-2003 06-02-2003 21-07-1999 09-05-2000 21-08-1997
GB 2323533	A	30-09-1998	DE 29805443 U1	25-06-1998
EP 1004280	A	31-05-2000	JP 2994635 B2 JP 2000157558 A EP 1004280 A1 KR 2000035692 A US 6227860 B1	27-12-1999 13-06-2000 31-05-2000 26-06-2000 08-05-2001
JP 05220174	A	31-08-1993	JP 1884337 C JP 6013038 B	10-11-1994 23-02-1994
FR 2703239	A	07-10-1994	FR 2703239 A1	07-10-1994
US 6302887	B1	16-10-2001	NONE	
US 2001011173	A1	02-08-2001	DE 19603887 A1 US 6270500 B1 US 6068631 A US 2002040224 A1 DE 59700637 D1 EP 0787466 A1 EP 0920837 A2 ES 2140156 T3 JP 3011896 B2 JP 9206311 A US 5800436 A	14-08-1997 07-08-2001 30-05-2000 04-04-2002 09-12-1999 06-08-1997 09-06-1999 16-02-2000 21-02-2000 12-08-1997 01-09-1998
US 5919194	A	06-07-1999	NONE	
WO 0180751	A	01-11-2001	US 2001049529 A1 US 2001049530 A1 AU 5915401 A EP 1276429 A1 WO 0180751 A1	06-12-2001 06-12-2001 07-11-2001 22-01-2003 01-11-2001